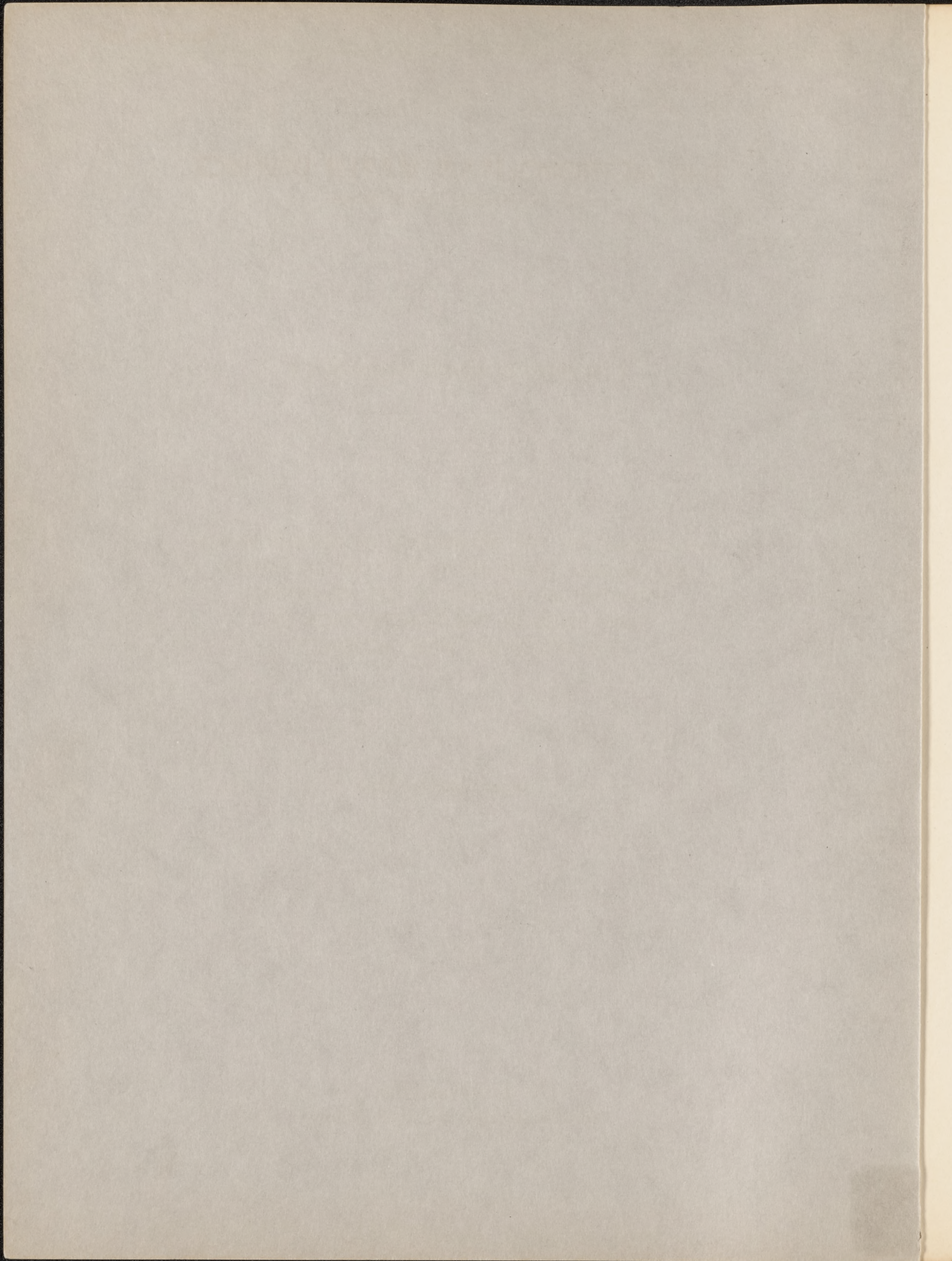


THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT

AN ESTIMATE OF THE DISTRIBUTION OF BENEFITS WHICH
WILL ACCRUE TO OTHER STATES THAN CALIFORNIA
FROM THE USE OF PUBLIC WORKS ADMINISTRA-
TION FUNDS IN THE CONSTRUCTION OF
THE COLORADO RIVER AQUEDUCT





THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT

AN ESTIMATE OF THE DISTRIBUTION OF BENEFITS WHICH
WILL ACCRUE TO OTHER STATES THAN CALIFORNIA
FROM THE USE OF PUBLIC WORKS ADMINISTRATION FUNDS IN THE CONSTRUCTION OF
THE COLORADO RIVER AQUEDUCT

NOVEMBER 10, 1933

F. E. WEYMOUTH
General Manager and Chief Engineer

THE NEW YORK PUBLIC LIBRARY

ASTOR LENOX TILDEN FOUNDATION

1000 5th Avenue, New York City

1000 5th Avenue, New York City

1000 5th Avenue, New York City

1000 5th Avenue, New York City

1000 5th Avenue, New York City

1000 5th Avenue, New York City

1000 5th Avenue, New York City

AN ESTIMATE OF THE DISTRIBUTION OF THE BENEFITS WHICH
WILL RESULT FROM THE USE OF PUBLIC WORKS AD-
MINISTRATION FUNDS FOR THE CONSTRUCTION
OF THE COLORADO RIVER AQUEDUCT

The Project

The Colorado River aqueduct project of The Metropolitan Water District of Southern California is being constructed for the purpose of bringing Colorado River water to the rapidly growing metropolitan area of Southern California. Present water resources have been utilized to the limit and additional water must be imported or the area must surely retrogress.

Estimated Cost

The project is estimated to cost \$209,420,000, including all construction for main aqueduct and distribution system, right of way, organization and preliminary engineering expense, and purchase of the Pine Canyon reservoir. Of this amount, \$193,700,000 will be for direct construction costs. It is estimated that \$95,039,000 will be expended directly for labor and \$77,260,000 for equipment, materials, and supplies. The division of these expenditures between California and the rest of the United States is shown in Table 1:

TABLE 1
Cost of project divided among labor, material, and other costs

<i>Items of cost</i>	<i>Outside California</i>	<i>Inside California</i>	<i>Total</i>
Labor	\$ 4,522,000	\$ 90,517,000	\$ 95,039,000
Equipment, material, and supplies	56,245,000	21,015,000	77,260,000
Other costs including contractors' profit and costs for financing, bonds, insurance	<u>18,566,000</u>	<u>2,835,000</u>	<u>21,401,000</u>
Total direct construction cost	\$79,333,000	\$114,367,000	\$193,700,000
Cost of right of way, Pine Canyon reservoir, etc.			<u>15,720,000</u>
		TOTAL	\$209,420,000

Benefits of Project Not Purely Local

The entire United States has a large self-interest in this project because it is estimated that of the total expenditures for material alone, 73 per cent, or \$56,245,000, will go outside the State to agencies supplying finished products and raw materials for use in the manufacture of these products. This self-interest is increased when it is understood that of the total expenditures made directly for construction (including both labor and material), it is estimated that 41 per cent, or \$79,333,000, will go outside of California. This interest is still further increased when it is understood that for each dollar paid to a California workman, 29 per cent goes directly outside the state. These distributions outside California when totalled equal \$105,600,000 or 55 per cent of the total amount to be expended directly for construction.

Classification of Goods Required

Comprising the \$77,260,000 to be expended for equipment, materials, and supplies, are the expenditures for the items shown in Table 2, wherein is also shown the estimated expenditure for each of twelve commodities and the amounts which will go outside California in each case.

TABLE 2
Classification of materials and supplies and of expenditures
inside and outside of California

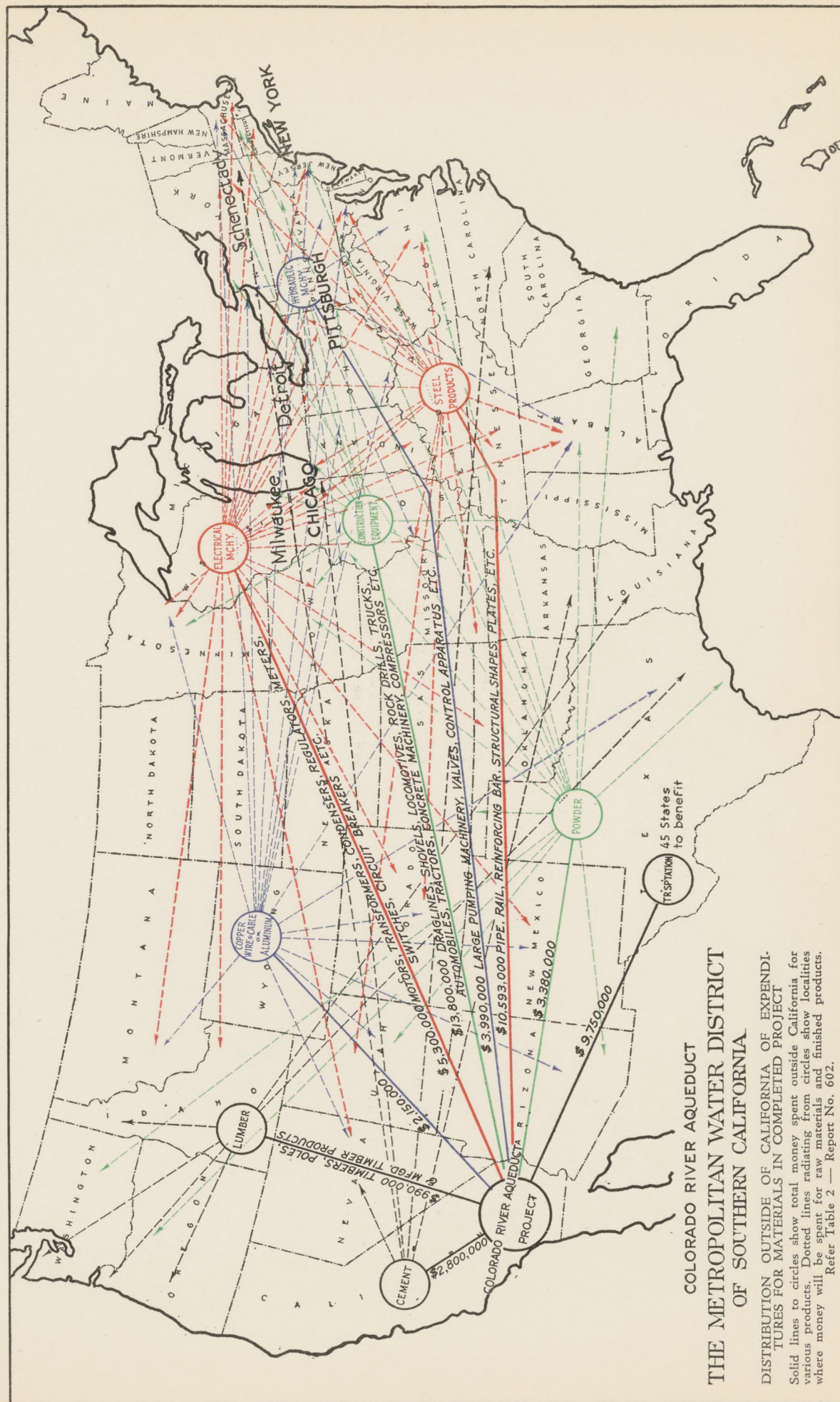
<i>Construction materials</i>	<i>Total value</i>	<i>Distribution</i>	
		<i>Other states</i>	<i>California</i>
Construction equipment	\$15,550,000	\$13,800,000	\$ 1,750,000
Steel products	14,770,000	10,593,000	4,177,000
Cement	9,700,000	2,800,000	6,900,000
Electric machinery	5,800,000	5,300,000	500,000
Explosives	4,900,000	3,380,000	1,520,000
Hydraulic machinery	4,050,000	3,990,000	60,000
Copper products	2,300,000	2,150,000	150,000
Lumber	1,090,000	990,000	100,000
Road oil	150,000	30,000	120,000
Miscellaneous small tools and supplies	3,620,000	2,600,000	1,020,000
SUBTOTAL	\$61,930,000	\$45,633,000	\$16,297,000
Transportation (freight)	13,370,000	9,750,000	3,620,000
Total construction materials and equipment	\$75,300,000	\$55,383,000	\$19,917,000
Percentages of total		73.5	26.5
Electric power (240,000,000 kw-hr.)	1,960,000	862,000	1,098,000
GRAND TOTAL	\$77,260,000	\$56,245,000	\$21,015,000
Percentages of total		72.8	27.2

On Charts 1, 2, and 3 are shown graphically the states which will benefit by the purchase of these materials. The figures shown in each case are the amounts of money which will go outside of California.

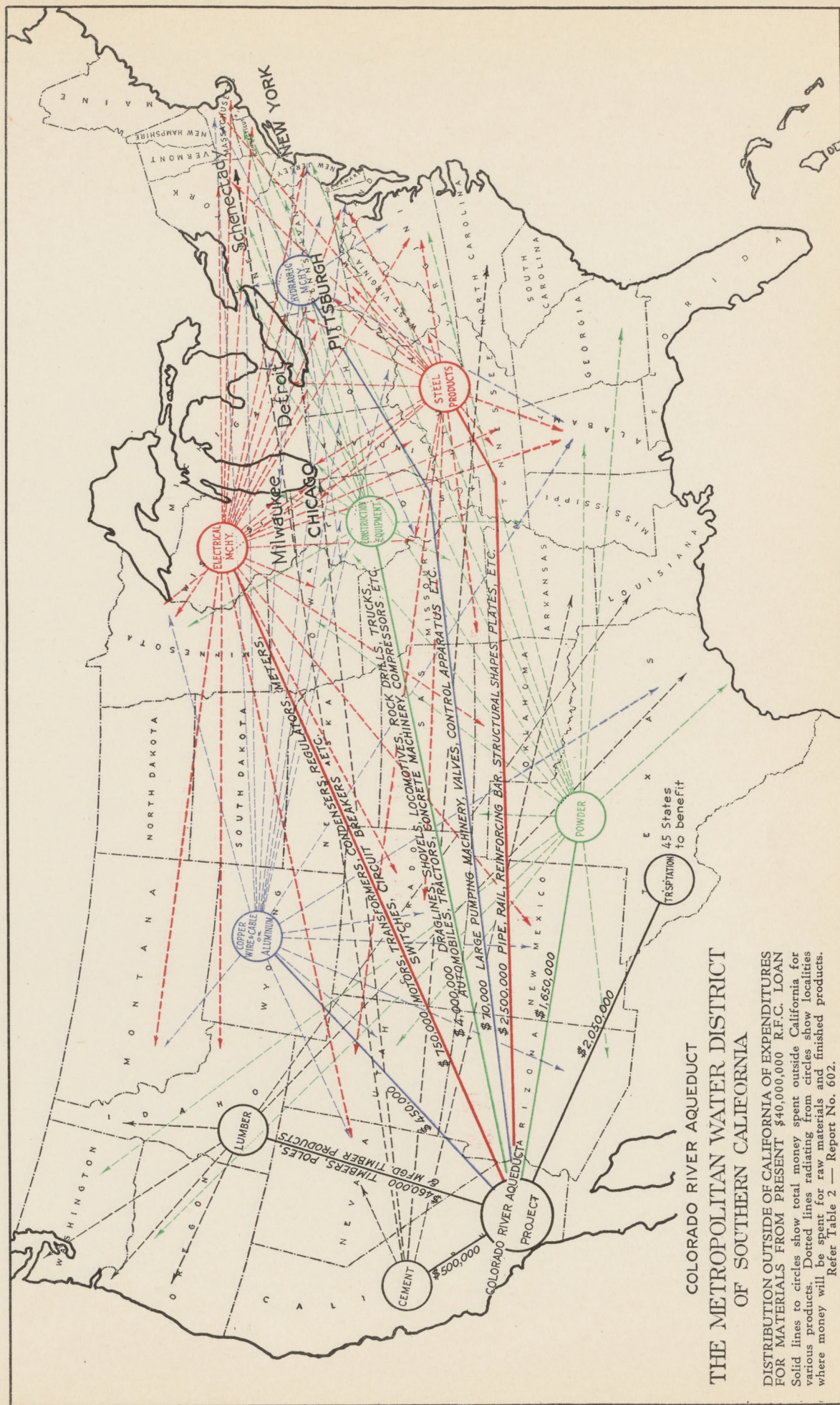
Sources of Data

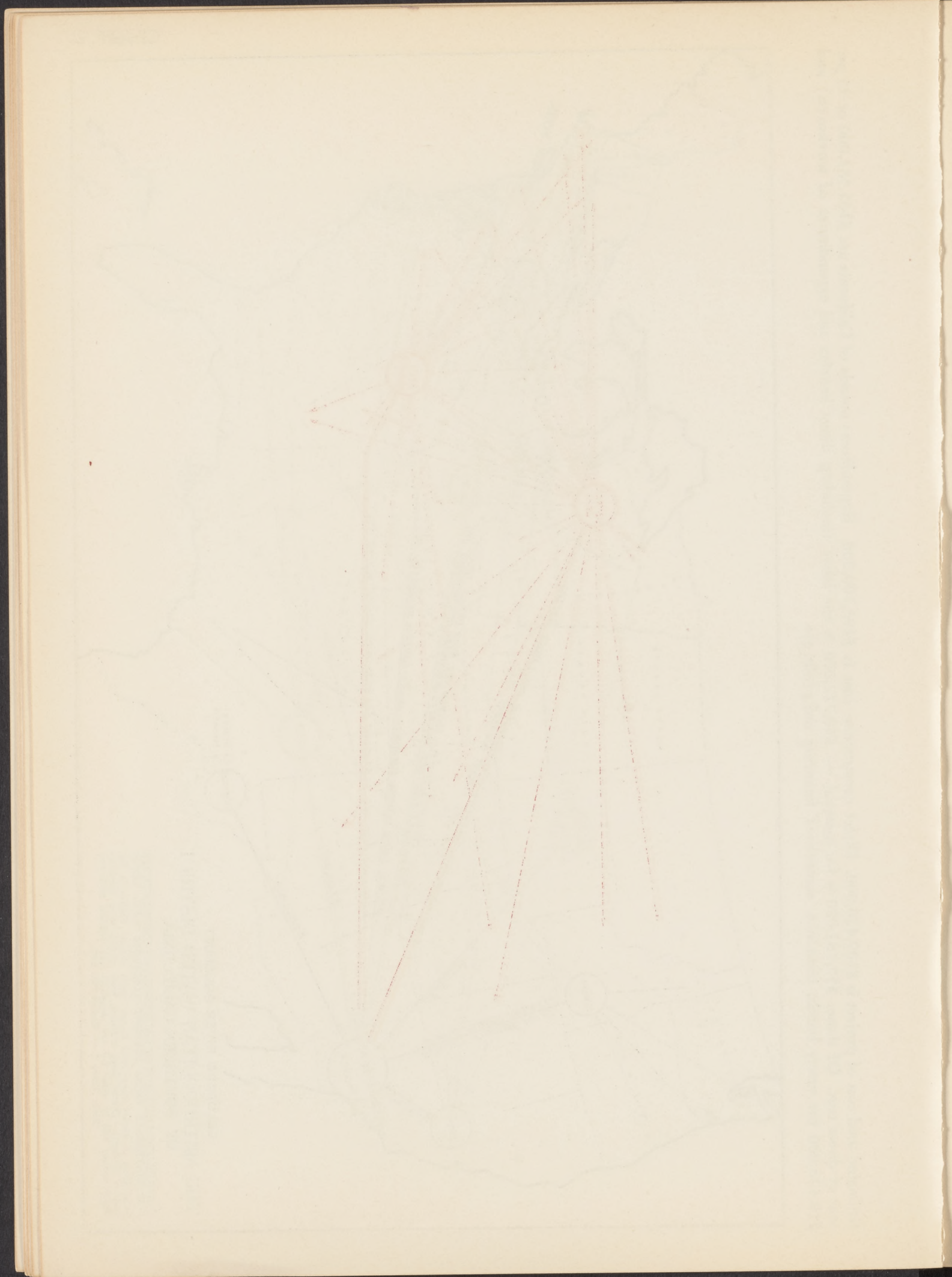
The data used in preparation of the charts and figures herein have been drawn wherever possible from publications of the United States Department of Commerce. In certain cases these data have been reconciled with information obtained as the result of direct inquiries made to representative manufacturers.

Estimated total cost of project is \$209,420,000. Direct construction cost is \$193,700,000. Expenditures outside of California are \$105,583,000 or 55 per cent of direct cost. Of these: \$55,383,000 is for material — \$30,772,000 is for labor (including direct benefits and expenditures of workmen) and \$19,428,000 for surety bonds, insurance, contractors' financing and profit, etc.

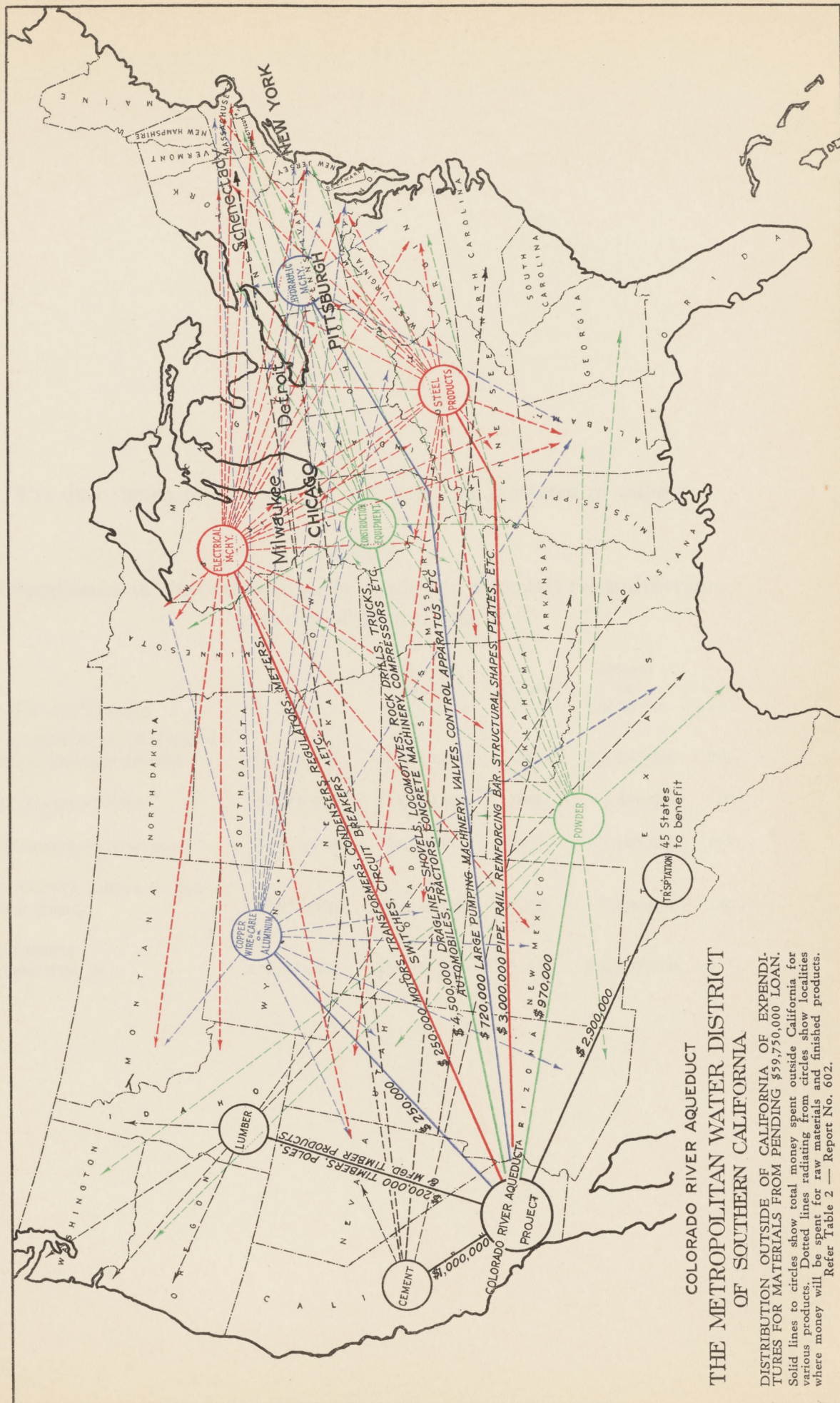


Estimated total cost of project is \$209,420,000. Direct construction cost is \$193,700,000. Expenditures outside of California are \$105,583,000 or 55 per cent of direct cost. Of these: \$55,383,000 is for material (including direct benefits and expenditures of workmen) and \$19,428,000 for surety bonds, insurance, contractors' financing and profit, etc.





Estimated total cost of project is \$209,420,000. Direct construction cost is \$193,700,000. Expenditures outside of California are \$105,583,000 or 55 per cent of direct cost. Of these: \$55,383,000 is for material (including direct benefits and expenditures of workmen) and \$19,428,000 for surety bonds, insurance, contractors' financing and profit, etc.



The data shown on Charts 1, 2, and 3 may be tabulated as follows:

TABLE 3
Distribution of expenditures to be made for materials from different portions of project cost

<i>Basis of Financing</i>	<i>Total</i>	<i>Amount outside California</i>	<i>Per cent of total</i>	<i>Amount in California</i>	<i>Per cent of total</i>
For an expenditure of \$40,000,- 000, as presently financed	\$18,275,000	\$13,510,000	74%	\$ 4,765,000	26%
\$ 59,750,000 additional	21,030,000	14,630,000	70%	6,400,000	30%
\$ 99,750,000, total of above	39,305,000	28,140,000	72%	11,165,000	28%
\$109,670,000, balance to com- plete project	37,955,000	28,113,000	74%	9,842,000	26%
\$209,420,000 Grand total cost	\$77,260,000	\$56,253,000	73%	\$21,007,000	27%

Distribution of \$15,550,000 for Construction Equipment

Chart No. 4 shows graphically the distribution of \$15,550,000 for construction equipment. The figures shown represent the estimated amounts of money which will be spent throughout the construction period of about six years for equipment and the replacements and parts necessary to keep this equipment operating. Only the principal items have been shown, since the number of different kinds of equipment are legion, and many must be grouped into a miscellaneous class. Expenditures for finished goods in the fifteen states enumerated range from \$70,000 to \$2,390,000, with \$1,000,000 to be spent in eighteen other states.

CONSTRUCTION EQUIPMENT \$15,550,000

FINISHED PRODUCTS

AIR COMPRESSORS \$1,060,000	AUTOMOBILES \$560,000	BLOWERS \$450,000	CARS \$680,000	CONCRETE PLANTS \$690,000	CRUSHING & SCREENING PLANTS \$760,000	LOCOMOTIVES \$1,250,000	MOTOR TRUCKS \$3,000,000	ROCK DRILLS & SHARPENERS \$590,000	SHOVELS & MUCKING MACHINES \$1,350,000	DRAGLINE EXCAVATORS \$1,740,000	TRACTORS \$380,000	OTHER \$3,040,000 ★ ★
-----------------------------------	--------------------------	----------------------	-------------------	---------------------------------	--	----------------------------	--------------------------------	--	---	---------------------------------------	-----------------------	-----------------------------

RAW MATERIALS \$6,687,000

CALIFORNIA \$1,750,000	ILLINOIS \$2,390,000	INDIANA \$650,000	MICHIGAN \$1,720,000	NEW YORK \$1,020,000	OHIO \$2,210,000	PENNSYLVANIA \$1,380,000	MINNESOTA \$125,000	WISCONSIN \$2170,000	NEW JERSEY \$590,000	IOWA \$210,000	MISSOURI \$160,000	CONNECTICUT \$105,000	COLORADO \$70,000	OTHERS \$1,000,000 ★
---------------------------	-------------------------	----------------------	-------------------------	-------------------------	---------------------	-----------------------------	------------------------	-------------------------	-------------------------	-------------------	-----------------------	--------------------------	----------------------	----------------------------

LARGE NUMBER OF ADDITIONAL STATES
BENEFITED. DISTRIBUTION TOO INVOLVED
TO BE SHOWN IN DETAIL.

★

MASSACHUSETTS	VIRGINIA
VERMONT	WEST VIRGINIA
NEW HAMPSHIRE	OKLAHOMA
GEORGIA	TEXAS
KENTUCKY	KANSAS
TENNESSEE	UTAH
ARKANSAS	IDAHO
LOUISIANA	WASHINGTON
MARYLAND	OREGON

★ ★ Additional items to the total amount of \$3,040,000, which are impractical of detailed distribution include: Backfilling Machines, Cableways, Derricks and Hoists, Fire Fighting Apparatus, Motor-Generators, Refrigerating Plants, Road Building equipment, Trenching Machines, Miscellaneous equipment, Repair Parts, Replacements etc.

The distribution of benefits to the various states is based on the production of the class of material indicated in comparison with the total 1929 U.S. production. All data based on U.S. Department of Commerce reports and the 1930 Census.

Source of Data
Bureau of Census
U.S. Department of Commerce
Manufactures-1929
Vol. II, Page 1107, Table 2

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT

DISTRIBUTION OF
EXPENDITURES FOR
CONSTRUCTION EQUIPMENT

DRAWN BY J.E.B.
TRACED BY NIMEN
CHECKED BY NIMEN

RECOMMENDED
APPROVED

Los Angeles 11-2-'33 A-892-1

Classification of Raw and Secondary Materials, and Finished Products

Raw materials for use in manufacture of these finished goods will be drawn from a large number of states. A definite distribution to such states, however, is involved and has not been made. Some such raw materials in the form of "producers' goods" would be the following:

TABLE 5

<i>Principal items of producers' goods</i>	<i>Secondary materials</i>	<i>Basic raw materials</i>
Steel products	<ul style="list-style-type: none"> Steel and iron castings Sheet steel Structural steel shapes Alloy steels, all kinds 	<ul style="list-style-type: none"> Iron ore Coal Coke, limestone Alloy metals, all kinds
Copper products	<ul style="list-style-type: none"> Cable and wire Bronze and brass Miscellaneous copper and brass parts 	<ul style="list-style-type: none"> Copper ores Zinc ores Tin Coal
Partial list of incorporated electrical goods not included in classification of electrical goods which follows later	<ul style="list-style-type: none"> Electric motors of all sizes, $\frac{1}{4}$ to 200 H.P. Starting controllers Resistance grids Meters and gauges Switches, oil, and open types Switchboard panels Transformers for immediate service to motors used Miscellaneous control devices 	<ul style="list-style-type: none"> Steel, iron castings Sheet steel Structural shapes Copper wire, cable Electric iron High resistance metals Rubber insulation Silk, cotton, insulation Varnishes Shellac Steel stampings Brass, copper Aluminum Aluminum alloy Alloy steels
Partial list of miscellaneous incorporated goods	<ul style="list-style-type: none"> Leather and fabric beltings Copper, brass, and steel pipe and tubing Tires Hardwood Miscellaneous 	<ul style="list-style-type: none"> Hides, rubber, cotton Copper, zinc, iron ores Coal Rubber Lumber

Distribution of Expenditures of \$14,770,000 for Steel Products

Chart 5 shows graphically the distribution of benefits from the purchase of \$14,770,000 worth of steel products of various kinds for incorporation in aqueduct structures. These products include eight general classifications which are shown in Table 6 with the principal uses of each set out opposite.

STEEL PRODUCTS \$ 14,770,000

FINISHED PRODUCTS

REINFORCING STEEL \$ 3,640,000	STEEL PIPE \$ 377,000	STEEL RAILS \$ 372,000	PLATES & SHAPES \$ 7,289,000	TUNNEL SUPPORTS \$ 750,000	TRANSMISSION TOWERS \$ 975,000	STRUCTURAL SHAPES (BLDG) \$ 243,000	SHEET STEEL SPECIAL & MISC \$ 1,124,000
--------------------------------------	--------------------------	---------------------------	------------------------------------	----------------------------------	--------------------------------------	---	---

CALIFORNIA \$ 4,177,000	NEW YORK \$ 430,950	PENNSYLVANIA \$ 3,761,000	OHIO \$ 3,262,400	INDIANA \$ 1,048,000	ILLINOIS \$ 837,750	UTAH \$ 401,500	ALL OTHERS \$ 851,400
----------------------------	------------------------	------------------------------	----------------------	-------------------------	------------------------	--------------------	--------------------------

RAW MATERIALS

IRON ORE \$ 1,025,000	IRON & STEEL SCRAP \$ 1,305,000	COKE \$ 324,000	LIMESTONE ETC \$ 69,000
--------------------------	---------------------------------------	--------------------	----------------------------

CALIFORNIA	ALABAMA	COLORADO	ILLINOIS	INDIANA	KENTUCKY	MARYLAND	MASS.	MICHIGAN	MINNESOTA	NEW YORK	OHIO	PENN.	TENNESSEE	UTAH	VIRGINIA	WEST VIRGINIA
------------	---------	----------	----------	---------	----------	----------	-------	----------	-----------	----------	------	-------	-----------	------	----------	---------------

The distribution of benefits to the various states is based on the production of the class of material indicated in comparison with the total 1929 U.S. production. All data based on U.S. Department of Commerce and the 1930 Census.

Source of Data
Bureau of Census
U.S. Department of Commerce
Manufactures - 1929

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT

DISTRIBUTION OF
EXPENDITURES FOR
STEEL PRODUCTS

DRAWN: J.F.B. --- RECOMMENDED
TRACED: W.M.C. --- APPROVED
CHECKED: ---

Los Angeles 11-2-33 A-892-2

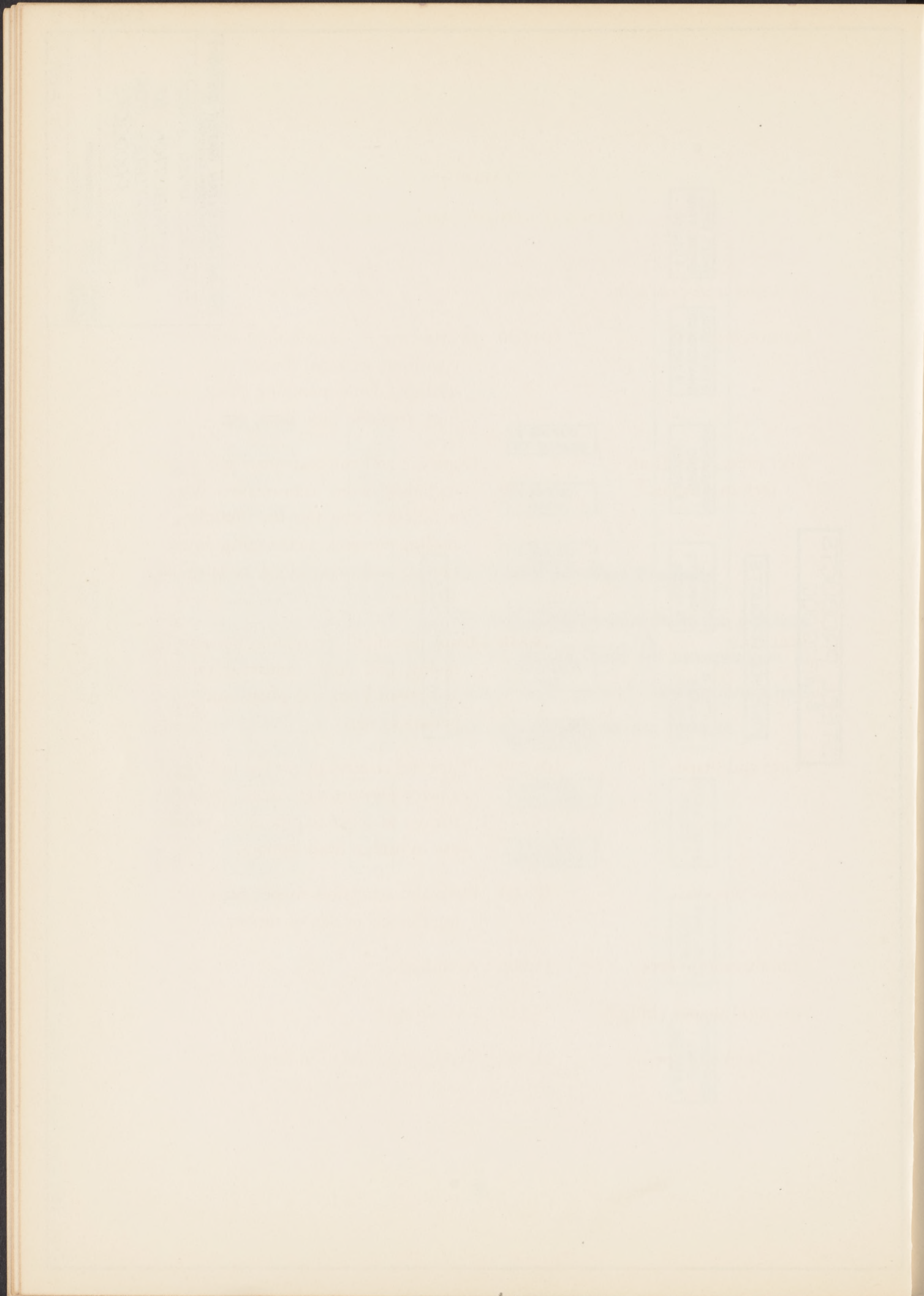


TABLE 6

Principal uses for steel products

<i>Principal steel products</i>	<i>Estimated amount in tons</i>	<i>Principal uses</i>
Reinforcing steel	104,000	Reinforcing in canal lining, siphons, transition sections, special conduit sections, dams, pumping plant buildings, concrete pipe lines, etc.
Steel pipe, sizes from 1 inch to 8 inches	7,250	Domestic and construction water supply including water transmission line paralleling aqueduct for 180 miles, cooling systems, unwatering lines in tunnels and excavations, compressed air lines.
Steel rails	8,850	Track principally in tunnels but also for incline and other industrial railways at sites of pumping plants and penstock lines.
Plates and shapes	103,750	Plates and structurals for use in large diameter pressure pipe lines, membrane for use in concrete pipe lines, possible use in higher head siphons.
Tunnel support	10,000	Plate and structural shapes for supporting tunnels in lieu of timber.
Transmission towers	15,000	As indicated
Structural shapes (bldg.)	4,150	As indicated
Sheet steel and special	11,000	Ventilating conduit in tunnels, forms for concrete construction.
Total	264,000	Tons

Coast Steel Production Limited to Small Class of Goods

In estimating the benefits from purchase of steel, allowance was made for the fabrication of a large amount of some classes of these goods in California. At the present time, although most kinds of fabrication can be done on the Pacific coast and in California, structural angles larger than 6 inches must be brought from the East. Very few other shapes are rolled locally and all plates heavier than 10 gauge must be shipped in. No small pipe or rails are manufactured on the Pacific coast. Although it is possible that some California rolled shapes may be used, the pig iron for adding to scrap comes from Utah or other points, as also does the necessary coke. Even with these considerations, California could not well obtain more than 35 per cent of this steel business.

Distribution of Expenditures of \$9, 700,000 for Cement

Cement is a large item of expense in the construction of the Colorado River aqueduct, since almost 5,000,000 cubic yards of concrete will be required. This cement will no doubt be drawn from four or five California mills.

Although the base of manufacturing operations is in California, \$2,800,000 of this expenditure is expected to go outside of California. Machinery for plant renewals comes almost entirely from eastern plants; gypsum is mined in southern Nevada; packing materials come from Arkansas and North Carolina; and capital charges on the production of fuel and power will be paid to holders of securities in a large number of states other than California.

Distribution of Expenditure of \$5,800,000 for Electrical Machinery

The Colorado River aqueduct project will require \$5,800,000 in electric machinery, consisting of large synchronous motors for use with the pumping equipment; transformers of 250 kva. to 10,000 kva. and for voltages from 33 kv. to 220 kv.; circuit breakers for 11 kv., 33 kv., 66 kv., and 22 kv.; and control apparatus of all kinds and classes.

Chart No. 6 shows the distribution of these expenditures. The finished products will be drawn principally from twelve states, and many other states will benefit from the secondary and basic raw materials from which the finished products are made.

ELECTRICAL MACHINERY \$5,800,000

FINISHED PRODUCTS

MOTORS
\$2,690,000

TRANSFORMERS
\$1,720,000

CIRCUIT BREAKERS
\$960,000

CONTROL APPARATUS
\$430,000

CALIFORNIA
\$500,000

ILLINOIS
\$1,000,000

PENNSYLVANIA
\$798,000

NEW JERSEY
\$675,000

NEW YORK
\$645,000

OHIO
\$608,000

MASSACHUSETTS
\$424,000

INDIANA
\$306,000

CONNECTICUT
\$199,000

MICHIGAN
\$144,000

MISSOURI
\$122,000

WISC. & OTHERS
\$379,000 *

SECONDARY MATERIALS \$2,380,000

CORE IRON

ILLINOIS
OHIO
PENNSYLVANIA

IRON & STEEL
CASTINGS

WISCONSIN
CALIFORNIA
ILLINOIS
OHIO
PENNSYLVANIA
MICHIGAN

ANTI-FRICTION
BEARING
METALS

ILLINOIS
MICHIGAN
NEW JERSEY
WISCONSIN
OTHERS *

COPPER, BRASS
&
BRONZE

MICHIGAN
ILLINOIS
NEW YORK
OHIO
PENNSYLVANIA
WISCONSIN
MISSOURI

INCORPORATED
ELECTRICAL
EQUIPMENT

ILLINOIS
NEW YORK
OHIO
MISSOURI
IOWA
OTHERS *

INSULATION
ETC.

ILLINOIS
NEW YORK
PENNSYLVANIA
OTHERS *

Cross Reference, Table #2 Report #602

* Includes Connecticut, Indiana, Maine, Massachusetts, Minnesota, Oklahoma, Tennessee, Texas, Washington, West Virginia, Kansas and Maryland.

The distribution of benefits to the various states is based on the production of the class of material indicated in comparison with the total 1929 U. S. production. All data based on U. S. Department of Commerce reports and 1930 Census.

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT

DISTRIBUTION OF EXPENDITURES
FOR

ELECTRICAL MACHINERY

DRAWN J.F.B.
TRACED, 1930
CHECKED. RECOMMENDED
APPROVED

Los Angeles, 11-2-'33 14-892-3

Source of Data
Bureau of Census
U.S. Department of Commerce
Manufactures-1929
Vol. II, Page 1123, Table 2 &
" 1140, " 6.

BASIC RAW MATERIALS

ARIZONA
COLORADO
IDAHO
KANSAS
MICHIGAN
MINNESOTA
MISSOURI
MONTANA
NEVADA
NEW JERSEY
NEW MEXICO
NEW YORK
OKLAHOMA
PENNSYLVANIA
TENNESSEE
UTAH
WISCONSIN

100-100000-100000

100-100000-100000

100-100000-100000

100-100000-100000

Distribution of Expenditure of \$4,050,000 for Hydraulic Machinery

Chart No. 7 shows data on the distribution for \$4,050,000 to be expended for hydraulic machinery. Of this sum it is estimated that \$2,050,000 will be expended for large pumps and \$2,000,000 for valves and gates. Nine states other than California will be directly benefited by purchases of the finished products. At least ten other states will benefit from \$1,800,000 spent for the secondary materials entering into manufacture, such as iron and steel castings, antifriction bearing metals, copper, brass, bronze, etc.

HYDRAULIC MACHINERY
\$ 4,050,000

FINISHED PRODUCT

LARGE PUMPS
\$ 2,050,000

VALVES & GATES
\$ 2,000,000

CALIFORNIA NEW JERSEY OHIO PENNSYLVANIA VIRGINIA WISCONSIN

ALABAMA CALIFORNIA ILLINOIS MASSACHUSETTS NEW JERSEY NEW YORK PENNSYLVANIA

SECONDARY MATERIALS
\$ 1,800,000

STATE	IRON & STEEL CASTINGS	ANTI-FRICTION BEARING METALS	COPPER, BRASS & BRONZE
	PERCENTAGE FURNISHED BY STATES		
CALIFORNIA	6 %	2 %	3 %
ILLINOIS	40	29	37
IOWA	5	1	1
MICHIGAN	17	20	9
MISSOURI			1
NEW JERSEY			
NEW YORK	1	2	2
OHIO	9	3	6
PENNSYLVANIA	5	5	9
WISCONSIN	14	37	28
ALL OTHER STATES	3	1	2
	100 %	100 %	100 %

Source of Material Data ~
Bureau of Census
U.S. Department of Commerce
Manufactures - 1929
Vol. II, Page 1140 & 1141, Table 6

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT

DISTRIBUTION OF
EXPENDITURES FOR
HYDRAULIC MACHINERY

DRAWN H.G.G.
TRACED H.H.H.-M.M.M.
CHECKED RECOMMENDED
APPROVED

Los Angeles 11-2-33 A-892-4

RECEIVED BY THE
LIBRARY OF THE
CONGRESS

APR 15 1964

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

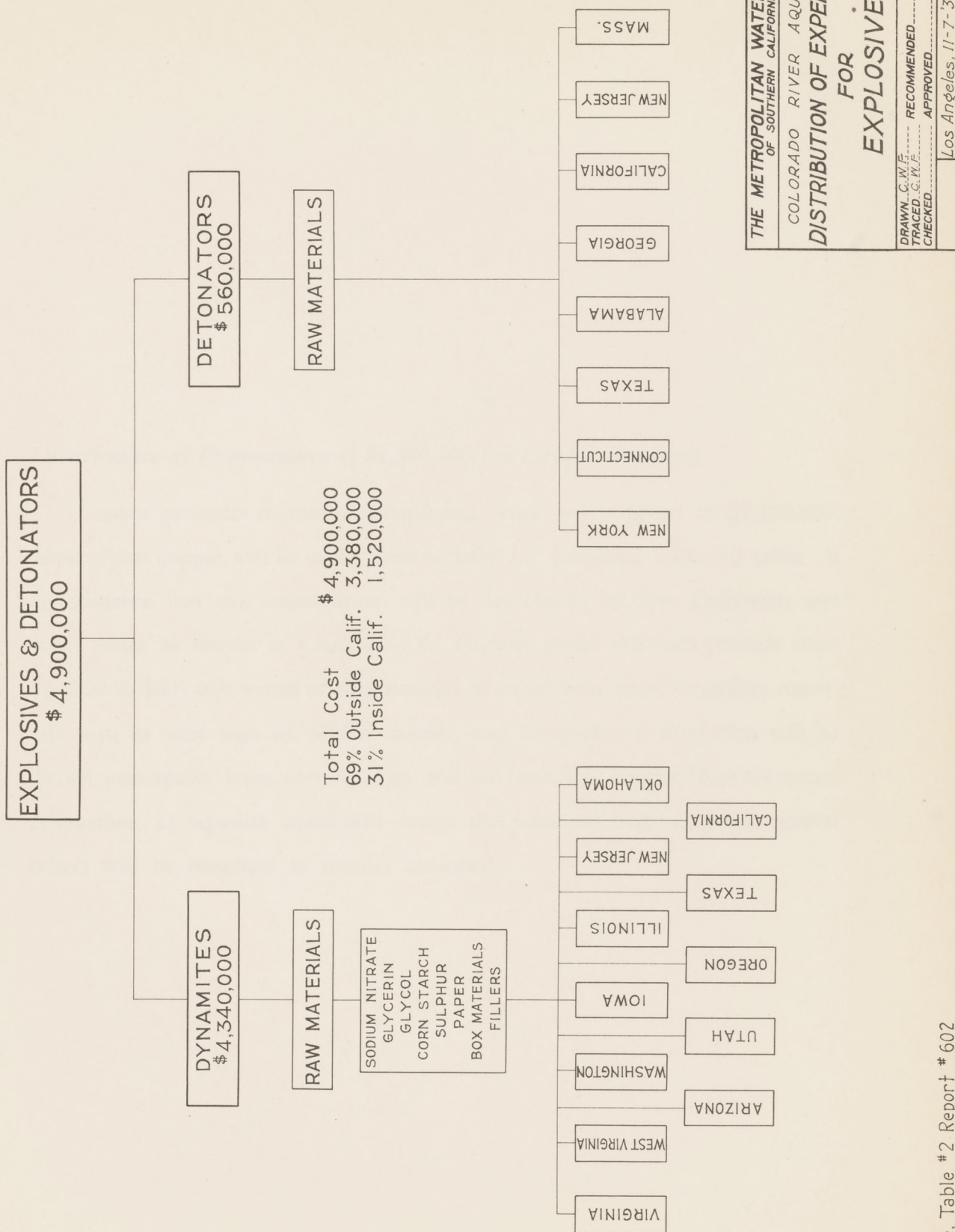
OFFICE OF THE SECRETARY

U.S. DEPT. OF COMMERCE

WASHINGTON, D.C.

Distribution of Expenditure of \$4,900,000 for Explosives

At least \$4,900,000 worth of explosives will be required for the project. These will consist of the various kinds of blasting powders, dynamite, and detonators. 69% of all expenditures for explosives (\$3,380,000) will go outside the State of California and 31% (\$1,520,000) will remain in that State. The states affected by this distribution are shown on Chart 8 on the following page.



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT

DISTRIBUTION OF EXPENDITURES
FOR
EXPLOSIVES

DRAWN: C.W.F.
TRACED: C.W.F.
CHECKED: C.W.F.

RECOMMENDED
APPROVED

Los Angeles, 11-7-'33. A-894

Distribution of Expenditure of \$2,300,000 for Copper Products

Copper products required for aqueduct work will amount to \$2,300,000. Most of this copper will be in the form of bare and insulated wire and cable. It is estimated that this expenditure will be distributed between California and other states as shown in Chart No. 9. Thirteen states will each provide from \$34,000 to \$607,000 worth of this material in its finished state; secondary materials such as wire bars of refined copper, and materials for insulation will be drawn principally from eleven states and the basic raw copper from six states. Altogether, 21 separate states will derive the principal benefits, while several others will be benefited in smaller amounts.

Contribution of Expenditures of \$2,500,000 for Copper Production

Copper production reported for September 1937 will amount to \$2,500,000. It is estimated that this expenditure will be distributed between California and other States as shown in Chart No. 1. The amount shown will cover production from 1937 to 1940, and the amount in the United States will be distributed as follows: 1. 1937 to 1940, 2. 1941 to 1942, 3. 1943 to 1944, 4. 1945 to 1946, 5. 1947 to 1948, 6. 1949 to 1950, 7. 1951 to 1952, 8. 1953 to 1954, 9. 1955 to 1956, 10. 1957 to 1958, 11. 1959 to 1960, 12. 1961 to 1962, 13. 1963 to 1964, 14. 1965 to 1966, 15. 1967 to 1968, 16. 1969 to 1970, 17. 1971 to 1972, 18. 1973 to 1974, 19. 1975 to 1976, 20. 1977 to 1978, 21. 1979 to 1980, 22. 1981 to 1982, 23. 1983 to 1984, 24. 1985 to 1986, 25. 1987 to 1988, 26. 1989 to 1990, 27. 1991 to 1992, 28. 1993 to 1994, 29. 1995 to 1996, 30. 1997 to 1998, 31. 1999 to 2000, 32. 2001 to 2002, 33. 2003 to 2004, 34. 2005 to 2006, 35. 2007 to 2008, 36. 2009 to 2010, 37. 2011 to 2012, 38. 2013 to 2014, 39. 2015 to 2016, 40. 2017 to 2018, 41. 2019 to 2020, 42. 2021 to 2022, 43. 2023 to 2024, 44. 2025 to 2026, 45. 2027 to 2028, 46. 2029 to 2030, 47. 2031 to 2032, 48. 2033 to 2034, 49. 2035 to 2036, 50. 2037 to 2038, 51. 2039 to 2040, 52. 2041 to 2042, 53. 2043 to 2044, 54. 2045 to 2046, 55. 2047 to 2048, 56. 2049 to 2050, 57. 2051 to 2052, 58. 2053 to 2054, 59. 2055 to 2056, 60. 2057 to 2058, 61. 2059 to 2060, 62. 2061 to 2062, 63. 2063 to 2064, 64. 2065 to 2066, 65. 2067 to 2068, 66. 2069 to 2070, 67. 2071 to 2072, 68. 2073 to 2074, 69. 2075 to 2076, 70. 2077 to 2078, 71. 2079 to 2080, 72. 2081 to 2082, 73. 2083 to 2084, 74. 2085 to 2086, 75. 2087 to 2088, 76. 2089 to 2090, 77. 2091 to 2092, 78. 2093 to 2094, 79. 2095 to 2096, 80. 2097 to 2098, 81. 2099 to 2100, 82. 2101 to 2102, 83. 2103 to 2104, 84. 2105 to 2106, 85. 2107 to 2108, 86. 2109 to 2110, 87. 2111 to 2112, 88. 2113 to 2114, 89. 2115 to 2116, 90. 2117 to 2118, 91. 2119 to 2120, 92. 2121 to 2122, 93. 2123 to 2124, 94. 2125 to 2126, 95. 2127 to 2128, 96. 2129 to 2130, 97. 2131 to 2132, 98. 2133 to 2134, 99. 2135 to 2136, 100. 2137 to 2138, 101. 2139 to 2140, 102. 2141 to 2142, 103. 2143 to 2144, 104. 2145 to 2146, 105. 2147 to 2148, 106. 2149 to 2150, 107. 2151 to 2152, 108. 2153 to 2154, 109. 2155 to 2156, 110. 2157 to 2158, 111. 2159 to 2160, 112. 2161 to 2162, 113. 2163 to 2164, 114. 2165 to 2166, 115. 2167 to 2168, 116. 2169 to 2170, 117. 2171 to 2172, 118. 2173 to 2174, 119. 2175 to 2176, 120. 2177 to 2178, 121. 2179 to 2180, 122. 2181 to 2182, 123. 2183 to 2184, 124. 2185 to 2186, 125. 2187 to 2188, 126. 2189 to 2190, 127. 2191 to 2192, 128. 2193 to 2194, 129. 2195 to 2196, 130. 2197 to 2198, 131. 2199 to 2200, 132. 2201 to 2202, 133. 2203 to 2204, 134. 2205 to 2206, 135. 2207 to 2208, 136. 2209 to 2210, 137. 2211 to 2212, 138. 2213 to 2214, 139. 2215 to 2216, 140. 2217 to 2218, 141. 2219 to 2220, 142. 2221 to 2222, 143. 2223 to 2224, 144. 2225 to 2226, 145. 2227 to 2228, 146. 2229 to 2230, 147. 2231 to 2232, 148. 2233 to 2234, 149. 2235 to 2236, 150. 2237 to 2238, 151. 2239 to 2240, 152. 2241 to 2242, 153. 2243 to 2244, 154. 2245 to 2246, 155. 2247 to 2248, 156. 2249 to 2250, 157. 2251 to 2252, 158. 2253 to 2254, 159. 2255 to 2256, 160. 2257 to 2258, 161. 2259 to 2260, 162. 2261 to 2262, 163. 2263 to 2264, 164. 2265 to 2266, 165. 2267 to 2268, 166. 2269 to 2270, 167. 2271 to 2272, 168. 2273 to 2274, 169. 2275 to 2276, 170. 2277 to 2278, 171. 2279 to 2280, 172. 2281 to 2282, 173. 2283 to 2284, 174. 2285 to 2286, 175. 2287 to 2288, 176. 2289 to 2290, 177. 2291 to 2292, 178. 2293 to 2294, 179. 2295 to 2296, 180. 2297 to 2298, 181. 2299 to 2300, 182. 2301 to 2302, 183. 2303 to 2304, 184. 2305 to 2306, 185. 2307 to 2308, 186. 2309 to 2310, 187. 2311 to 2312, 188. 2313 to 2314, 189. 2315 to 2316, 190. 2317 to 2318, 191. 2319 to 2320, 192. 2321 to 2322, 193. 2323 to 2324, 194. 2325 to 2326, 195. 2327 to 2328, 196. 2329 to 2330, 197. 2331 to 2332, 198. 2333 to 2334, 199. 2335 to 2336, 200. 2337 to 2338, 201. 2339 to 2340, 202. 2341 to 2342, 203. 2343 to 2344, 204. 2345 to 2346, 205. 2347 to 2348, 206. 2349 to 2350, 207. 2351 to 2352, 208. 2353 to 2354, 209. 2355 to 2356, 210. 2357 to 2358, 211. 2359 to 2360, 212. 2361 to 2362, 213. 2363 to 2364, 214. 2365 to 2366, 215. 2367 to 2368, 216. 2369 to 2370, 217. 2371 to 2372, 218. 2373 to 2374, 219. 2375 to 2376, 220. 2377 to 2378, 221. 2379 to 2380, 222. 2381 to 2382, 223. 2383 to 2384, 224. 2385 to 2386, 225. 2387 to 2388, 226. 2389 to 2390, 227. 2391 to 2392, 228. 2393 to 2394, 229. 2395 to 2396, 230. 2397 to 2398, 231. 2399 to 2400, 232. 2401 to 2402, 233. 2403 to 2404, 234. 2405 to 2406, 235. 2407 to 2408, 236. 2409 to 2410, 237. 2411 to 2412, 238. 2413 to 2414, 239. 2415 to 2416, 240. 2417 to 2418, 241. 2419 to 2420, 242. 2421 to 2422, 243. 2423 to 2424, 244. 2425 to 2426, 245. 2427 to 2428, 246. 2429 to 2430, 247. 2431 to 2432, 248. 2433 to 2434, 249. 2435 to 2436, 250. 2437 to 2438, 251. 2439 to 2440, 252. 2441 to 2442, 253. 2443 to 2444, 254. 2445 to 2446, 255. 2447 to 2448, 256. 2449 to 2450, 257. 2451 to 2452, 258. 2453 to 2454, 259. 2455 to 2456, 260. 2457 to 2458, 261. 2459 to 2460, 262. 2461 to 2462, 263. 2463 to 2464, 264. 2465 to 2466, 265. 2467 to 2468, 266. 2469 to 2470, 267. 2471 to 2472, 268. 2473 to 2474, 269. 2475 to 2476, 270. 2477 to 2478, 271. 2479 to 2480, 272. 2481 to 2482, 273. 2483 to 2484, 274. 2485 to 2486, 275. 2487 to 2488, 276. 2489 to 2490, 277. 2491 to 2492, 278. 2493 to 2494, 279. 2495 to 2496, 280. 2497 to 2498, 281. 2499 to 2500, 282. 2501 to 2502, 283. 2503 to 2504, 284. 2505 to 2506, 285. 2507 to 2508, 286. 2509 to 2510, 287. 2511 to 2512, 288. 2513 to 2514, 289. 2515 to 2516, 290. 2517 to 2518, 291. 2519 to 2520, 292. 2521 to 2522, 293. 2523 to 2524, 294. 2525 to 2526, 295. 2527 to 2528, 296. 2529 to 2530, 297. 2531 to 2532, 298. 2533 to 2534, 299. 2535 to 2536, 300. 2537 to 2538, 301. 2539 to 2540, 302. 2541 to 2542, 303. 2543 to 2544, 304. 2545 to 2546, 305. 2547 to 2548, 306. 2549 to 2550, 307. 2551 to 2552, 308. 2553 to 2554, 309. 2555 to 2556, 310. 2557 to 2558, 311. 2559 to 2560, 312. 2561 to 2562, 313. 2563 to 2564, 314. 2565 to 2566, 315. 2567 to 2568, 316. 2569 to 2570, 317. 2571 to 2572, 318. 2573 to 2574, 319. 2575 to 2576, 320. 2577 to 2578, 321. 2579 to 2580, 322. 2581 to 2582, 323. 2583 to 2584, 324. 2585 to 2586, 325. 2587 to 2588, 326. 2589 to 2590, 327. 2591 to 2592, 328. 2593 to 2594, 329. 2595 to 2596, 330. 2597 to 2598, 331. 2599 to 2600, 332. 2601 to 2602, 333. 2603 to 2604, 334. 2605 to 2606, 335. 2607 to 2608, 336. 2609 to 2610, 337. 2611 to 2612, 338. 2613 to 2614, 339. 2615 to 2616, 340. 2617 to 2618, 341. 2619 to 2620, 342. 2621 to 2622, 343. 2623 to 2624, 344. 2625 to 2626, 345. 2627 to 2628, 346. 2629 to 2630, 347. 2631 to 2632, 348. 2633 to 2634, 349. 2635 to 2636, 350. 2637 to 2638, 351. 2639 to 2640, 352. 2641 to 2642, 353. 2643 to 2644, 354. 2645 to 2646, 355. 2647 to 2648, 356. 2649 to 2650, 357. 2651 to 2652, 358. 2653 to 2654, 359. 2655 to 2656, 360. 2657 to 2658, 361. 2659 to 2660, 362. 2661 to 2662, 363. 2663 to 2664, 364. 2665 to 2666, 365. 2667 to 2668, 366. 2669 to 2670, 367. 2671 to 2672, 368. 2673 to 2674, 369. 2675 to 2676, 370. 2677 to 2678, 371. 2679 to 2680, 372. 2681 to 2682, 373. 2683 to 2684, 374. 2685 to 2686, 375. 2687 to 2688, 376. 2689 to 2690, 377. 2691 to 2692, 378. 2693 to 2694, 379. 2695 to 2696, 380. 2697 to 2698, 381. 2699 to 2700, 382. 2701 to 2702, 383. 2703 to 2704, 384. 2705 to 2706, 385. 2707 to 2708, 386. 2709 to 2710, 387. 2711 to 2712, 388. 2713 to 2714, 389. 2715 to 2716, 390. 2717 to 2718, 391. 2719 to 2720, 392. 2721 to 2722, 393. 2723 to 2724, 394. 2725 to 2726, 395. 2727 to 2728, 396. 2729 to 2730, 397. 2731 to 2732, 398. 2733 to 2734, 399. 2735 to 2736, 400. 2737 to 2738, 401. 2739 to 2740, 402. 2741 to 2742, 403. 2743 to 2744, 404. 2745 to 2746, 405. 2747 to 2748, 406. 2749 to 2750, 407. 2751 to 2752, 408. 2753 to 2754, 409. 2755 to 2756, 410. 2757 to 2758, 411. 2759 to 2760, 412. 2761 to 2762, 413. 2763 to 2764, 414. 2765 to 2766, 415. 2767 to 2768, 416. 2769 to 2770, 417. 2771 to 2772, 418. 2773 to 2774, 419. 2775 to 2776, 420. 2777 to 2778, 421. 2779 to 2780, 422. 2781 to 2782, 423. 2783 to 2784, 424. 2785 to 2786, 425. 2787 to 2788, 426. 2789 to 2790, 427. 2791 to 2792, 428. 2793 to 2794, 429. 2795 to 2796, 430. 2797 to 2798, 431. 2799 to 2800, 432. 2801 to 2802, 433. 2803 to 2804, 434. 2805 to 2806, 435. 2807 to 2808, 436. 2809 to 2810, 437. 2811 to 2812, 438. 2813 to 2814, 439. 2815 to 2816, 440. 2817 to 2818, 441. 2819 to 2820, 442. 2821 to 2822, 443. 2823 to 2824, 444. 2825 to 2826, 445. 2827 to 2828, 446. 2829 to 2830, 447. 2831 to 2832, 448. 2833 to 2834, 449. 2835 to 2836, 450. 2837 to 2838, 451. 2839 to 2840, 452. 2841 to 2842, 453. 2843 to 2844, 454. 2845 to 2846, 455. 2847 to 2848, 456. 2849 to 2850, 457. 2851 to 2852, 458. 2853 to 2854, 459. 2855 to 2856, 460. 2857 to 2858, 461. 2859 to 2860, 462. 2861 to 2862, 463. 2863 to 2864, 464. 2865 to 2866, 465. 2867 to 2868, 466. 2869 to 2870, 467. 2871 to 2872, 468. 2873 to 2874, 469. 2875 to 2876, 470. 2877 to 2878, 471. 2879 to 2880, 472. 2881 to 2882, 473. 2883 to 2884, 474. 2885 to 2886, 475. 2887 to 2888, 476. 2889 to 2890, 477. 2891 to 2892, 478. 2893 to 2894, 479. 2895 to 2896, 480. 2897 to 2898, 481. 2899 to 2900, 482. 2901 to 2902, 483. 2903 to 2904, 484. 2905 to 2906, 485. 2907 to 2908, 486. 2909 to 2910, 487. 2911 to 2912, 488. 2913 to 2914, 489. 2915 to 2916, 490. 2917 to 2918, 491. 2919 to 2920, 492. 2921 to 2922, 493. 2923 to 2924, 494. 2925 to 2926, 495. 2927 to 2928, 496. 2929 to 2930, 497. 2931 to 2932, 498. 2933 to 2934, 499. 2935 to 2936, 500. 2937 to 2938, 501. 2939 to 2940, 502. 2941 to 2942, 503. 2943 to 2944, 504. 2945 to 2946, 505. 2947 to 2948, 506. 2949 to 2950, 507. 2951 to 2952, 508. 2953 to 2954, 509. 2955 to 2956, 510. 2957 to 2958, 511. 2959 to 2960, 512. 2961 to 2962, 513. 2963 to 2964, 514. 2965 to 2966, 515. 2967 to 2968, 516. 2969 to 2970, 517. 2971 to 2972, 518. 2973 to 2974, 519. 2975 to 2976, 520. 2977 to 2978, 521. 2979 to 2980, 522. 2981 to 2982, 523. 2983 to 2984, 524. 2985 to 2986, 525. 2987 to 2988, 526. 2989 to 2990, 527. 2991 to 2992, 528. 2993 to 2994, 529. 2995 to 2996, 530. 2997 to 2998, 531. 2999 to 3000, 532. 3001 to 3002, 533. 3003 to 3004, 534. 3005 to 3006, 535. 3007 to 3008, 536. 3009 to 3010, 537. 3011 to 3012, 538. 3013 to 3014, 539. 3015 to 3016, 540. 3017 to 3018, 541. 3019 to 3020, 542. 3021 to 3022, 543. 3023 to 3024, 544. 3025 to 3026, 545. 3027 to 3028, 546. 3029 to 3030, 547. 3031 to 3032, 548. 3033 to 3034, 549. 3035 to 3036, 550. 3037 to 3038, 551. 3039 to 3040, 552. 3041 to 3042, 553. 3043 to 3044, 554. 3045 to 3046, 555. 3047 to 3048, 556. 3049 to 3050, 557. 3051 to 3052, 558. 3053 to 3054, 559. 3055 to 3056, 560. 3057 to 3058, 561. 3059 to 3060, 562. 3061 to 3062, 563. 3063 to 3064, 564. 3065 to 3066, 565. 3067 to 3068, 566. 3069 to 3070, 567. 3071 to 3072, 568. 3073 to 3074, 569. 3075 to 3076, 570. 3077 to 3078, 571. 3079 to 3080, 572. 3081 to 3082, 573. 3083 to 3084, 574. 3085 to 3086, 575. 3087 to 3088, 576. 3089 to 3090, 577. 3091 to 3092, 578. 3093 to 3094, 579. 3095 to 3096, 580. 3097 to 3098, 581. 3099 to 3100, 582. 3101 to 3102, 583. 3103 to 3104, 584. 3105 to 3106, 585. 3107 to 3108, 586. 3109 to 3110, 587. 3111 to 3112, 588. 3113 to 3114, 589. 3115 to 3116, 590. 3117 to 3118, 591. 3119 to 3120, 592. 3121 to 3122, 593. 3123 to 3124, 594. 3125 to 3126, 595. 3127 to 3128, 596. 3129 to 3130, 597. 3131 to 3132, 598. 3133 to 3134, 599. 3135 to 3136, 600. 3137 to 3138, 601. 3139 to 3140, 602. 3141 to 3142, 603. 3143 to 3144, 604. 3145 to 3146, 605. 3147 to 3148, 606. 3149 to 3150, 607. 3151 to 3152, 608. 3153 to 3154, 609. 3155 to 3156, 610. 3157 to 3158, 611. 3159 to 3160, 612. 3161 to 3162, 613. 3163 to 3164, 614. 3165 to 3166, 615. 3167 to 3168, 616. 3169 to 3170, 617. 3171 to 3172, 618. 3173 to 3174, 619. 3175 to 3176, 620. 3177 to 3178, 621. 3179 to 3180, 622. 3181 to 3182, 623. 3183 to 3184, 624. 3185 to 3186, 625. 3187 to 3188, 626. 3189 to 3190, 627. 3191 to 3192, 628. 3193 to 3194, 629. 3195 to 3196, 630. 3197 to 3198, 631. 3199 to 3200, 632. 3201 to 3202, 633. 3203 to 3204, 634. 3205 to 3206, 635. 3207 to 3208, 636. 3209 to 3210, 637. 3211 to 3212, 638. 3213 to 3214, 639. 3215 to 3216, 640. 3217 to 3218, 641. 3219 to 3220, 642. 3221 to 3222, 643. 3223 to 3224, 644. 3225 to 3226, 645. 3227 to 3228, 646. 3229 to 3230, 647. 3231 to 3232, 648. 3233 to 3234, 649. 3235 to 3236, 650. 3237 to 3238, 651. 3239 to 3240, 652. 3241 to 3242, 653. 3243 to 3244, 654. 3245 to 3246, 655. 3247 to 3248, 656. 3249 to 3250, 657. 3251 to 3252, 658. 3253 to 3254, 659. 3255 to 3256, 660. 3257 to 3258, 661. 3259 to 3260, 662. 3261 to 3262, 663. 3263 to 3264, 664. 3265 to 3266, 665. 3267 to 3268, 666. 3269 to 3270, 667. 3271 to 3272, 668. 3273 to 3274, 669. 3275 to 3276, 670. 3277 to 3278, 671. 3279 to 3280, 672. 3281 to 3282, 673. 3283 to 3284, 674. 3285 to 3286, 675. 3287 to 3288, 676. 3289 to 3290, 677. 3291 to 3292, 678. 3293 to 3294, 679. 3295 to 3296, 680. 3297 to 3298, 681. 3299 to 3300, 682. 3301 to 3302, 683. 3303 to 3304, 684. 3305 to 3306, 685. 3307 to 3308, 686. 3309 to 3310, 687. 3311 to 3312, 688. 3313 to 3314, 689. 3315 to 3316, 690. 3317 to 3318, 691. 3319 to 3320, 692. 3321 to 3322, 693. 3323 to 3324, 694. 3325 to 3326, 695. 3327 to 3328, 696. 3329 to 3330, 697. 3331 to 3332, 698. 3333 to 3334, 699. 3335 to 3336, 700. 3337 to 3338, 701. 3339 to 3340, 702. 3341 to 3342, 703. 3343 to 3344, 704. 3345 to 3346, 705. 3347 to 3348, 706. 3349 to 3350, 707. 3351 to 3352, 708. 3353 to 3354, 709. 3355 to 3356, 710. 3357 to 3358, 711. 3359 to 3360, 712. 3361 to 3362, 713. 3363 to 3364, 714. 3365 to 3366, 715. 3367 to 3368, 716. 3369 to 3370, 717. 3371 to 3372, 718. 3373 to 3374, 719. 3375 to 3376, 720. 3377 to 3378, 721. 3379 to 3380, 722. 3381 to 3382, 723. 3383 to 3384, 724. 3385 to 3386, 725. 3387 to 3388, 72

COPPER PRODUCTS
\$ 2,300,000

FINISHED PRODUCTS

INSULATED
COPPER WIRE

COPPER WIRE & CABLE

- CALIFORNIA \$150,000
- ALABAMA \$90,000
- COLORADO \$37,000
- ILLINOIS \$364,000
- INDIANA \$114,000
- MARYLAND \$39,000
- MASSACHUSETTS \$155,000
- MINNESOTA \$34,000
- NEW YORK \$118,000
- NEW JERSEY \$116,000
- OHIO \$267,000
- PENNSYLVANIA \$607,000
- RHODE ISLAND \$37,000
- ALL OTHERS* \$172,000

* Includes CONNECTICUT, GEORGIA,
MICHIGAN, MISSOURI, MONTANA, TEXAS,
RHODE ISLAND and WISCONSIN.

SECONDARY MATERIALS

INSULATION

REFINED
COPPER

- ALABAMA
- CONNECTICUT
- ILLINOIS
- INDIANA
- MASS
- MICHIGAN
- NEW JERSEY
- NEW YORK
- OHIO
- PENN.
- TEXAS
- ALL OTHERS

RAW COPPER

- ARIZONA 41%
- UTAH 15%
- MONTANA 14%
- MICHIGAN 10%
- NEVADA 6%
- NEW MEXICO 5%

The distribution of benefits to the various states is based on the production of the class of material indicated in comparison with the total 1929 U.S. production. All data based on U.S. Department of Commerce reports and 1930 Census.

Source of Data
Bureau of Census
U.S. Department of Commerce
Manufactures - 1929
Vol. II, Page 1018, Table 8

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

COLORADO RIVER AQUEDUCT
DISTRIBUTION OF EXPENDITURES
FOR

COPPER PRODUCTS

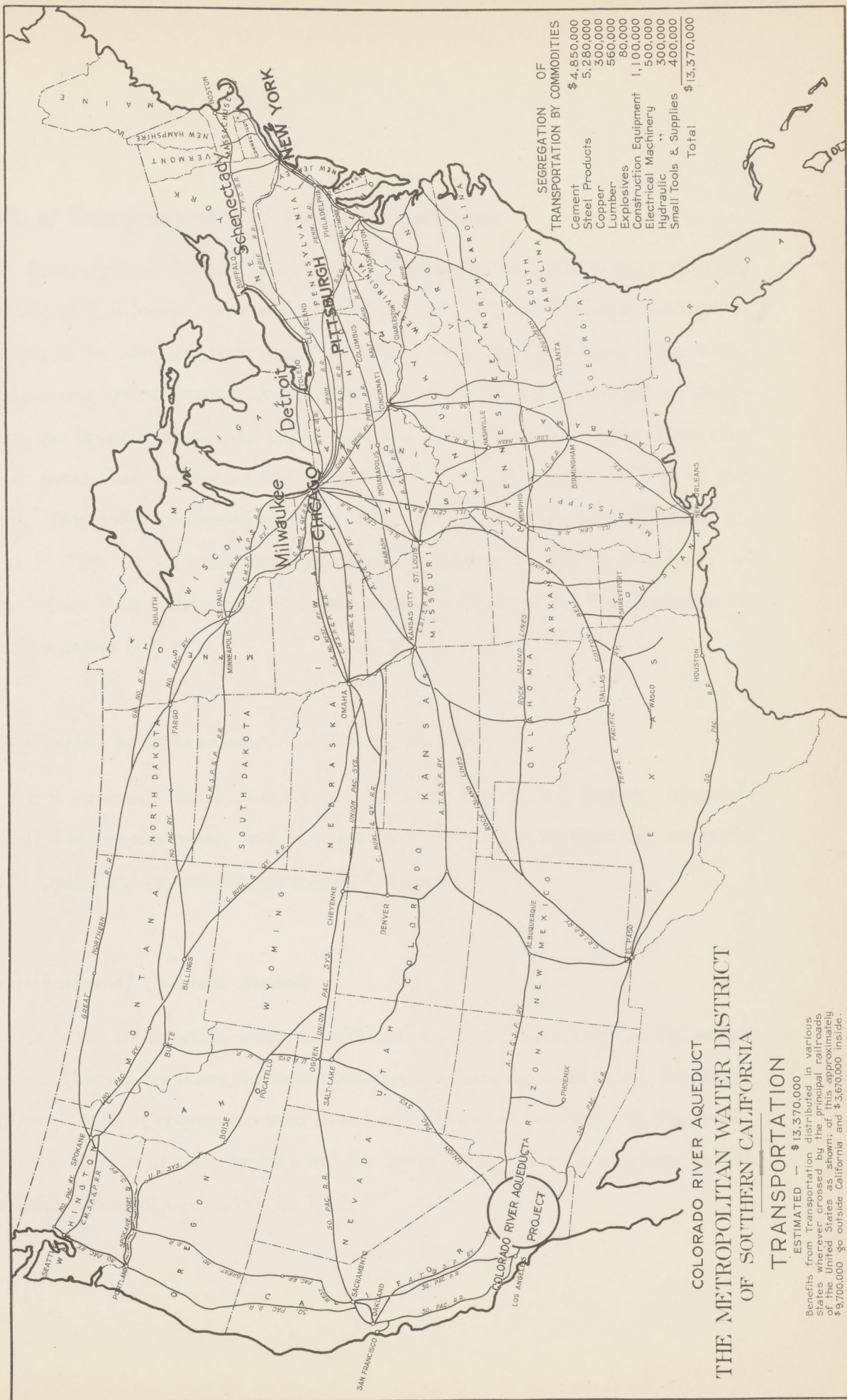
DRAWN J.F.B.	RECOMMENDED
TRACED BY J.F.B.	APPROVED
CHECKED	
Los Angeles	A-892-5

Distribution of Expenditure of \$4,860,000 for Lumber and Miscellaneous Items

The distribution for lumber, road oil and miscellaneous small tools and supplies has not been shown in detail beyond Table 2. The last classification, that for miscellaneous small tools and supplies, includes such a variety of relatively small items that enumeration has not been made.

Distribution of Expenditure of \$13,370,000 for Transportation

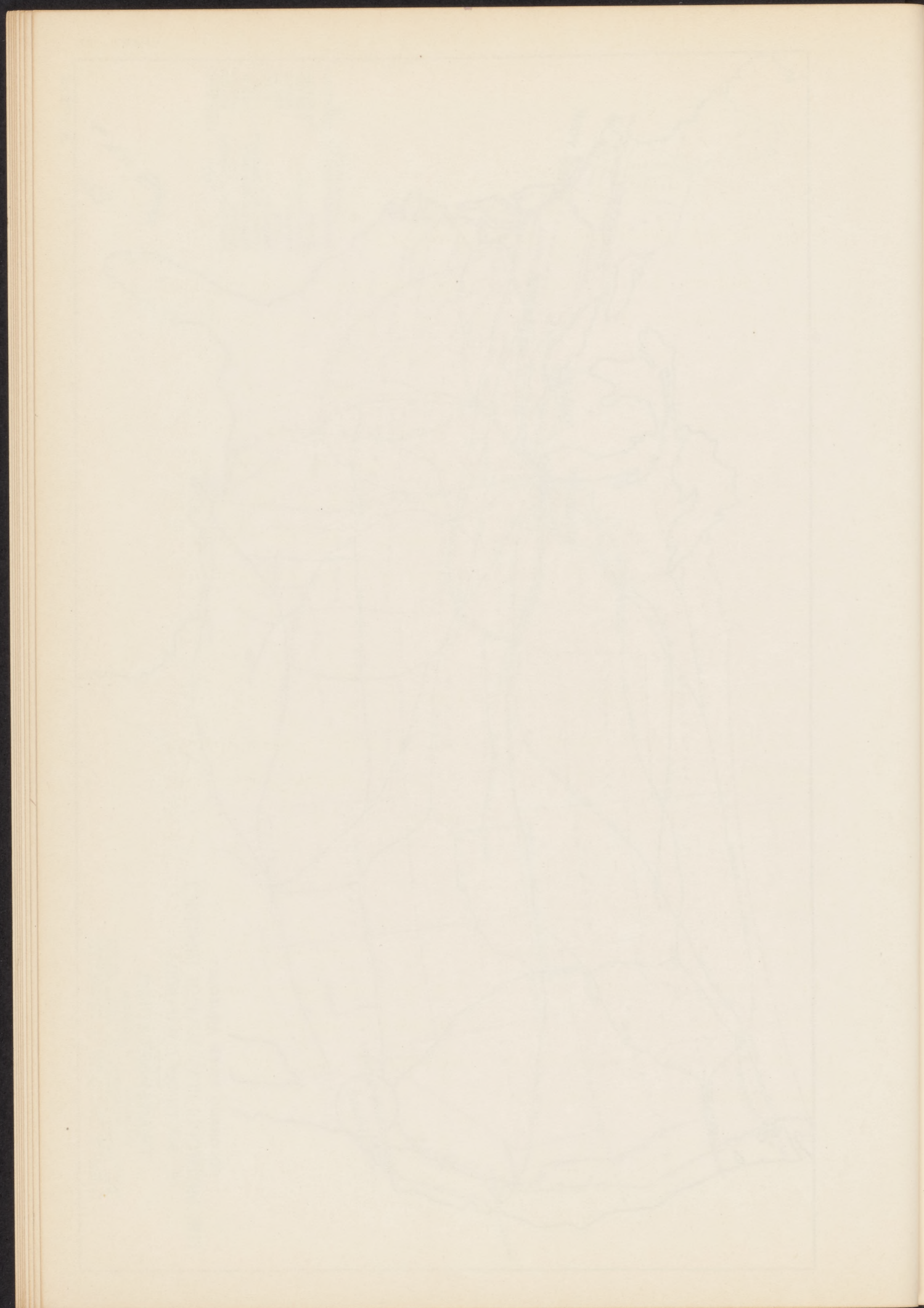
Chart No. 10 shows the distribution of \$13,370,000 for transportation, by means of a map indicating the principal railway systems to be used for hauling the different commodities from the sources of the various materials entering into the finished goods and the finished goods from factory to the aqueduct work. It is estimated that about ^{1,200,000,000}~~1,200,000~~ ton-miles of railway freight will be involved in handling finished goods alone.



COLORADO RIVER AQUEDUCT THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

TRANSPORTATION

ESTIMATED — \$13,370,000
Benefits from Transportation distributed in various States from California to the Atlantic States. States shown in this approximately \$9,700,000 go outside California and \$3,670,000 inside.



73% of Transportation will go outside California

It is estimated that about 58% of all transportation will be over facilities outside of California. The remaining 42% results from the large tonnage of cement to be handled from local mills over tracks in California. This 42%, representing transportation over tracks in California, when divided to determine the benefits which will accrue inside and outside of the state, shows that other states than California will benefit by 36% of this 42%, or 15% of the total. This 15%, combined with the 58% entirely outside of California, results in 73% of all transportation costs, amounting to \$9,750,000 going to other states than California. The data considered are for the transportation of finished goods only.

Distribution of Expenditures for Electric Power

It is estimated that \$1,960,000 will be spent for electric power. Approximately 44% of this money will be spent by the power companies for materials and supplies and capital charges outside California.

Distribution of Contract Awards

Bids for construction work are solicited from the contractors of the entire nation. Thirteen contracts for tunnel construction have been awarded, involving \$27,945,795. The contractors who have been successful in obtaining this work, with the amount of their awards and the home office of each as given in his financial statement, are shown in Table 7.

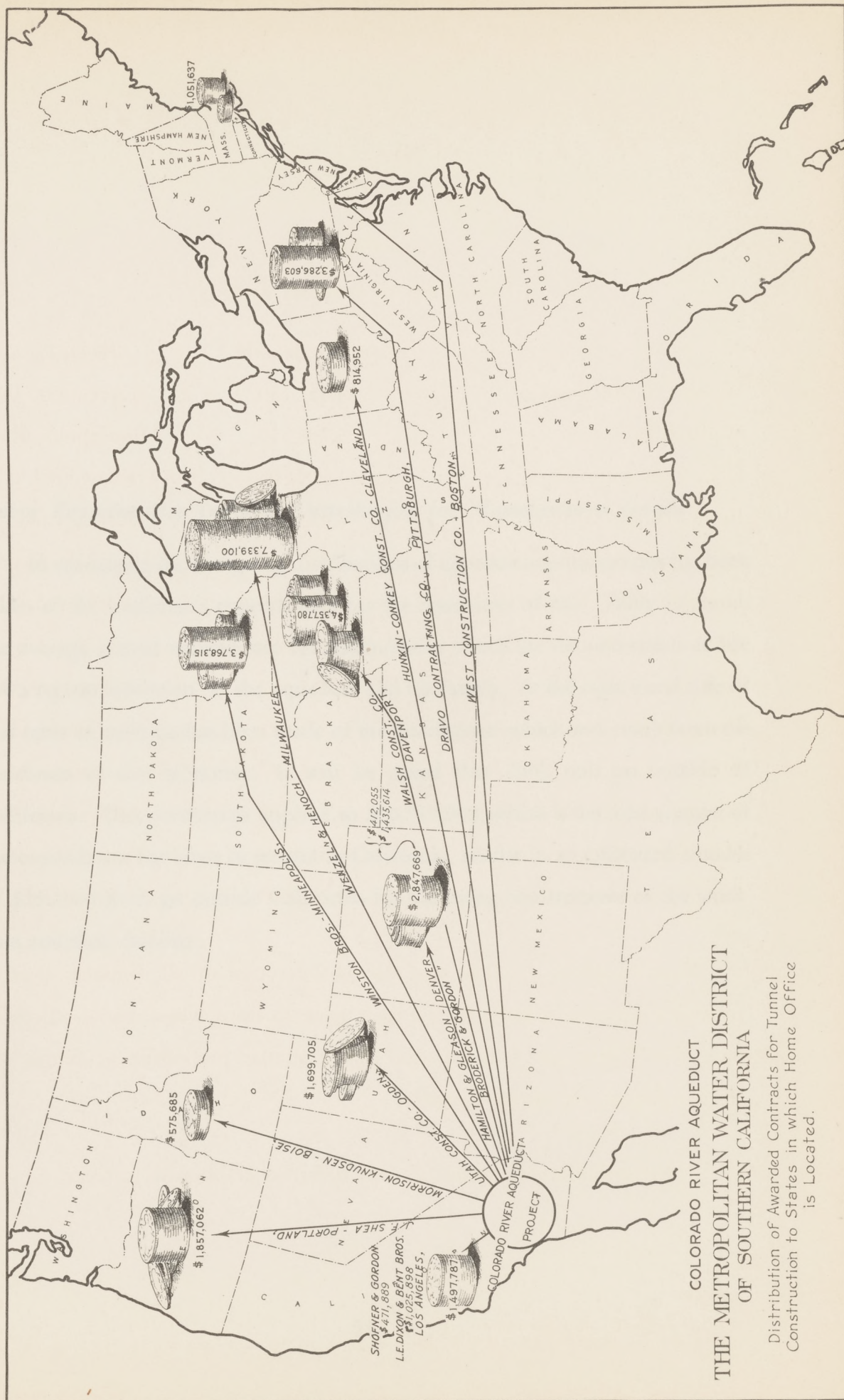
TABLE 7

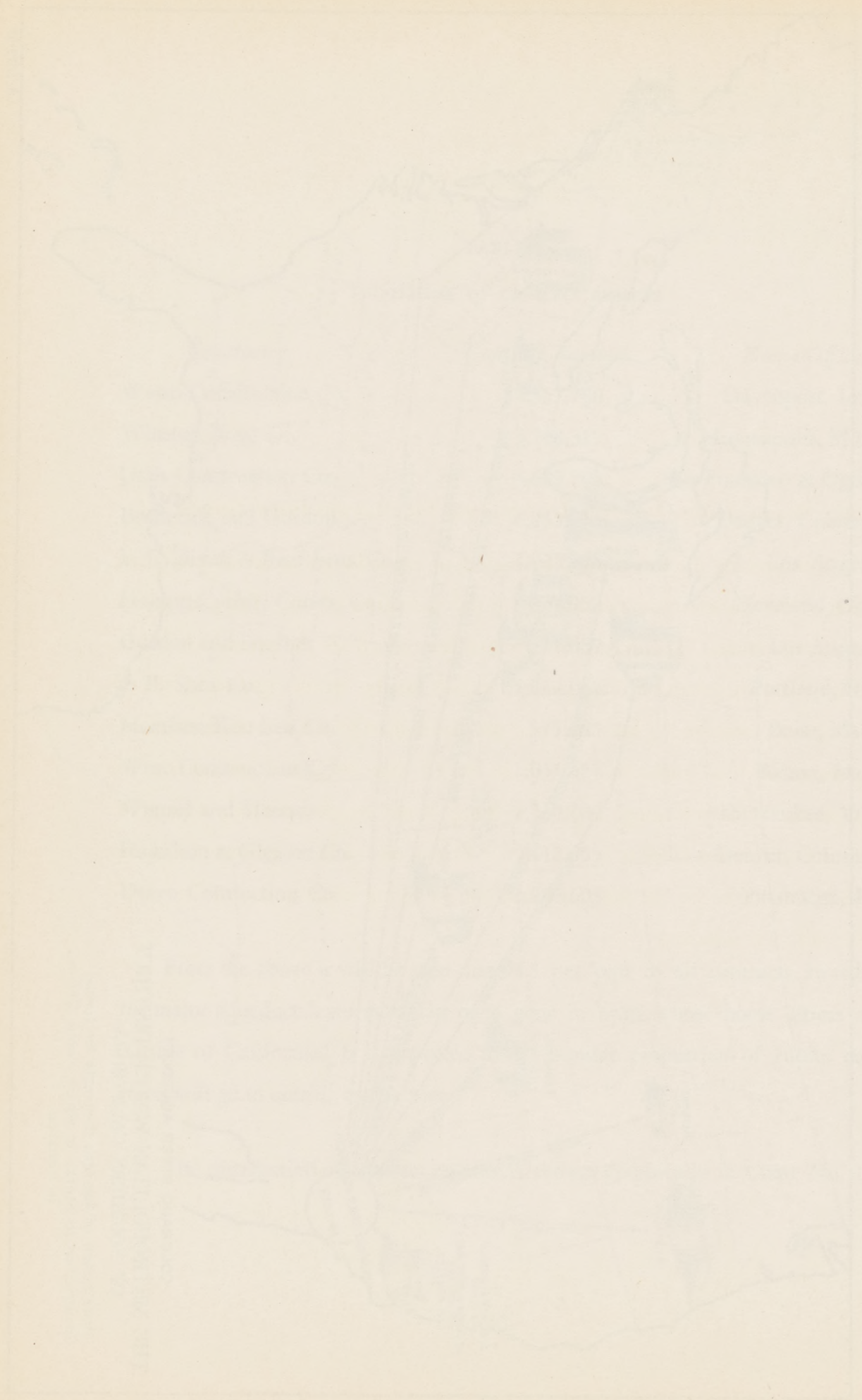
Tabulation of contract awards

<i>Contractor</i>	<i>Contract Amount</i>	<i>Home Office</i>
Walsh Construction Co.	\$4,357,780	Davenport, Iowa
Winston Bros. Co.	3,768,315	Minneapolis, Minn.
Utah Construction Co.	1,699,705	San Francisco & Ogden
Broderick and Gordon	1,435,614	Denver, Colorado
L. E. Dixon & Bent Bros. Co.	1,025,898	Los Angeles
Hunkin-Conkey Constr. Co.	814,952	Cleveland, Ohio
Gordon and Shofner	471,889	Los Angeles
J. F. Shea Co.	1,857,062	Portland, Ore.
Morrison-Knudsen Co.	575,685	Boise, Idaho
West Construction Co.	1,051,637	Boston, Mass.
Wenzel and Henoch	7,339,100	Milwaukee, Wis.
Hamilton & Gleason Co.	412,055	Denver, Colorado
Dravo Contracting Co.	3,286,603	Pittsburgh, Pa.

From the above it will be seen that 94.5 per cent of all contracts awarded for major aqueduct features to date have gone to firms whose home offices are outside of California. It is expected that a similar proportion of future contracts will go to outside contractors.

The distribution of contract awards is shown graphically in Chart No. 11.





Labor Payment also Involves Distribution for Manufactured Goods

In estimating the foregoing distributions of expenditures no account has been taken of the workman's expenditures for the necessities of life. Table 12 shows the average annual expenditure for commodities which are the necessities of life for a typical workman on the aqueduct and his family. At the right-hand side of this table an estimate has been made of the distribution which will result from the purchases of this workman. It will be noted that 29% will go outside of California. This percentage applied to \$90,517,000, which is the total amount of the expenditure for labor to remain in California, results in an estimated amount of \$26,250,000 to go outside California for the living requirements of the workmen and their families.

TABLE 12
Annual expenditures of typical workman and his family

<i>Items</i>	<i>Amount</i>	<i>California</i>	<i>Other States</i>
<i>Food:</i>			
Meat, fish, etc.	\$ 65	\$ 65	\$
Dairy products	73	60	13
Cereals	10	3	7
Miscellaneous groceries	102	85	17
Vegetables	25	25
Fruits	6	4	2
	<hr/>	<hr/>	<hr/>
	\$ 281	\$ 242	\$ 39
<i>Clothing:</i>			
Hosiery	\$ 7	\$ 3	\$ 4
Underwear	17	8	9
Suits	20	4	16
Coats	18	7	11
Dresses	19	11	8
Shirts	4	2	2
Overalls	4	2	2
Gloves	3	2	1
Hats, caps, etc.	9	3	6
Shoes	23	1	22
	<hr/>	<hr/>	<hr/>
	\$ 124	\$ 43	\$ 81
<i>Housing:</i>	\$ 391	\$ 391	\$
<i>Fuel and light:</i>			
Gas	\$ 27	\$ 27	\$
Electricity	18	18
	<hr/>	<hr/>	<hr/>
	\$ 45	\$ 45	\$
<i>Furniture and furnishings:</i>			
Household furniture	\$ 73	\$ 39	\$ 34
Household furnishings	16	3	13
	<hr/>	<hr/>	<hr/>
	\$ 89	\$ 42	\$ 47

TABLE 12 (Continued)

<i>Items</i>	<i>Amount</i>	<i>California</i>	<i>Other States</i>
<i>Transportation:</i>			
Automobile	\$ 200	\$ 50	\$150
Gasoline and oil	62	62
Repairs, tires, etc.	65	50	15
Carfare	37	37
	<hr/>	<hr/>	<hr/>
	\$ 364	\$ 199	\$165
<i>Medical care:</i>			
Physician, dentist, oculist	\$ 50	\$ 50	\$
<i>Sundries:</i>			
Barber services	\$ 12	\$ 12	\$
Confectionery	6	6	2
Drugs and toilet articles	14	7	7
Gifts and dues	34	25	9
Insurance	59	59
Reading material	22	11	11
Recreation	24	24
Telephone	18	9	9
Tobacco	24	24
	<hr/>	<hr/>	<hr/>
	\$ 213	\$ 92	\$121
Grand Total	\$1,557	\$1,104	\$453
Per cent	100%	71%	29%

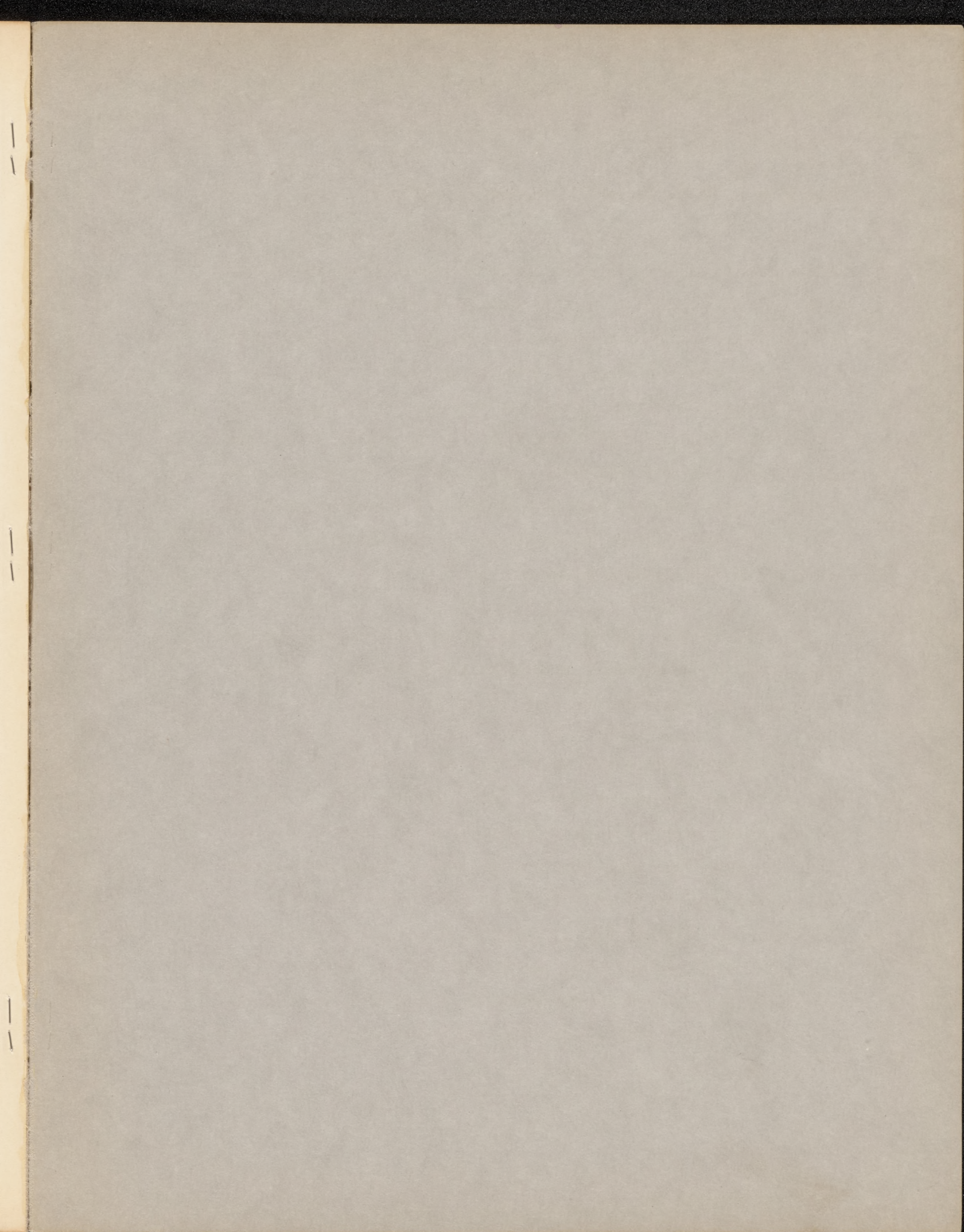
Note: Data from reports—National Industrial Conference Board, 1914-30; U. S. Dept. of Labor; Monthly Review, August, 1932; California State Chamber of Commerce; U. S. Dept. of Commerce.

Summation of All Benefits to Other States than California

Table 1 shows a total of \$79,330,000 to go outside California for material, insurance, bond premiums, contractors' profit, etc. If the foregoing expenditures of the workmen are added to this, it results in a figure of \$105,583,000 (or 55% of the total direct cost of construction) for the total benefit to other states of the nation. Larger figures for the benefits to other states would be shown from successive analyses of the various exchanges or "turnovers" of the money paid out for aqueduct construction. Such further analysis is impracticable and has not been attempted. However, from the foregoing it may be said with confidence that Public Works Administration funds loaned to The Metropolitan Water District of Southern California for construction of the Colorado River aqueduct will benefit the entire nation in a major way.

When the District's application for \$59,750,000 now pending before the Public Works Administration is approved, the District can have 16,000 men at work within four months after the money is made available.

The PWA in its press release No. 223 states that for every man employed directly on construction, two are employed behind the lines producing materials and other commodities to serve the construction workmen. Most of these men would be employed fabricating materials for use in the work and providing commodities used personally by the workmen and their families. This means that 48,000 men will be given work as a result of the approval of such a loan of \$59,750,000. This employment will benefit California and other states in the same ratio as their productions of the various items of material shown in the foregoing. For every PWA dollar spent on the Colorado River aqueduct, other states than California will receive at least 55 cents.



WHT.B1.0246 (2 of 2)